20100 "8216"

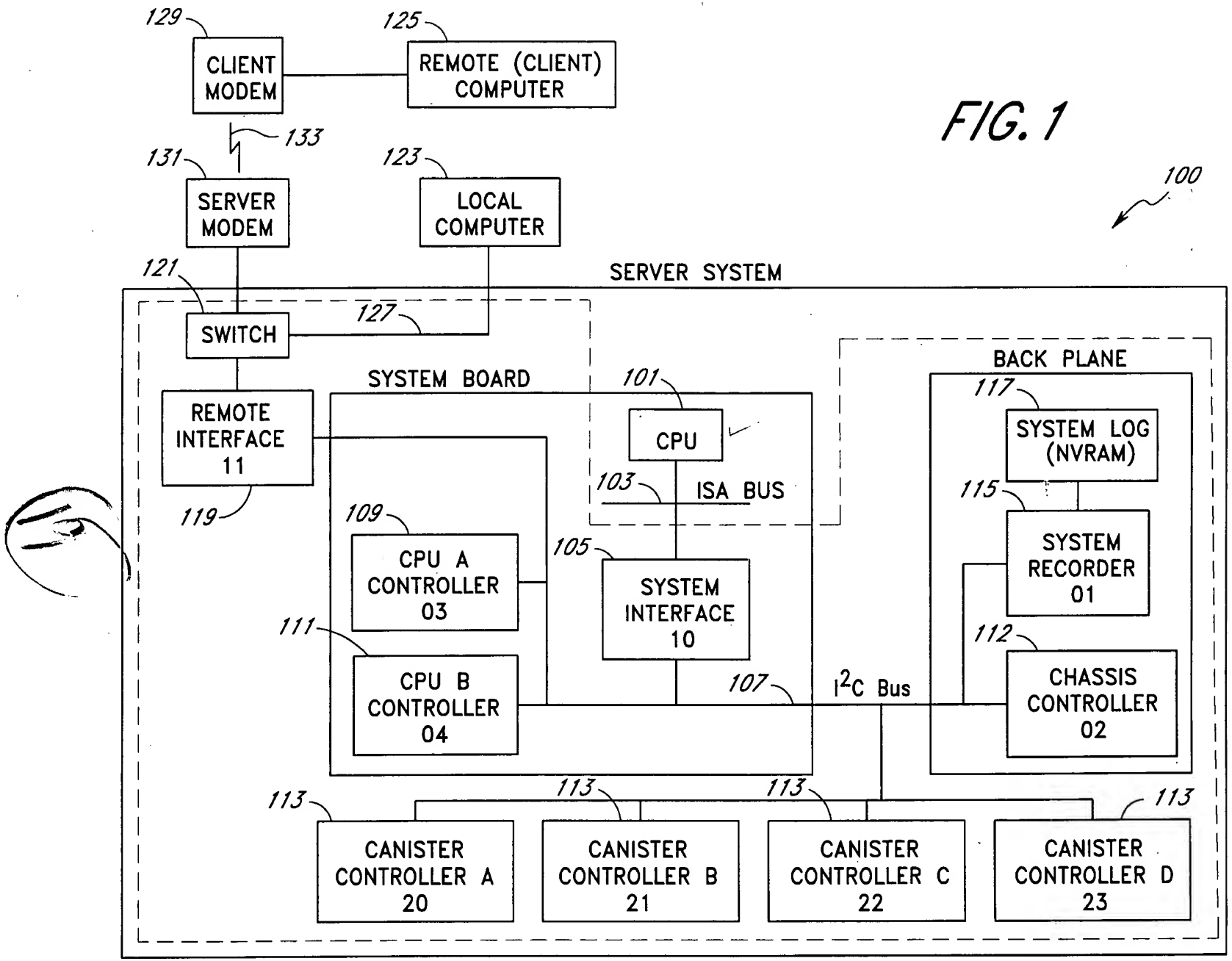

FIG. 1

20707 "8972660

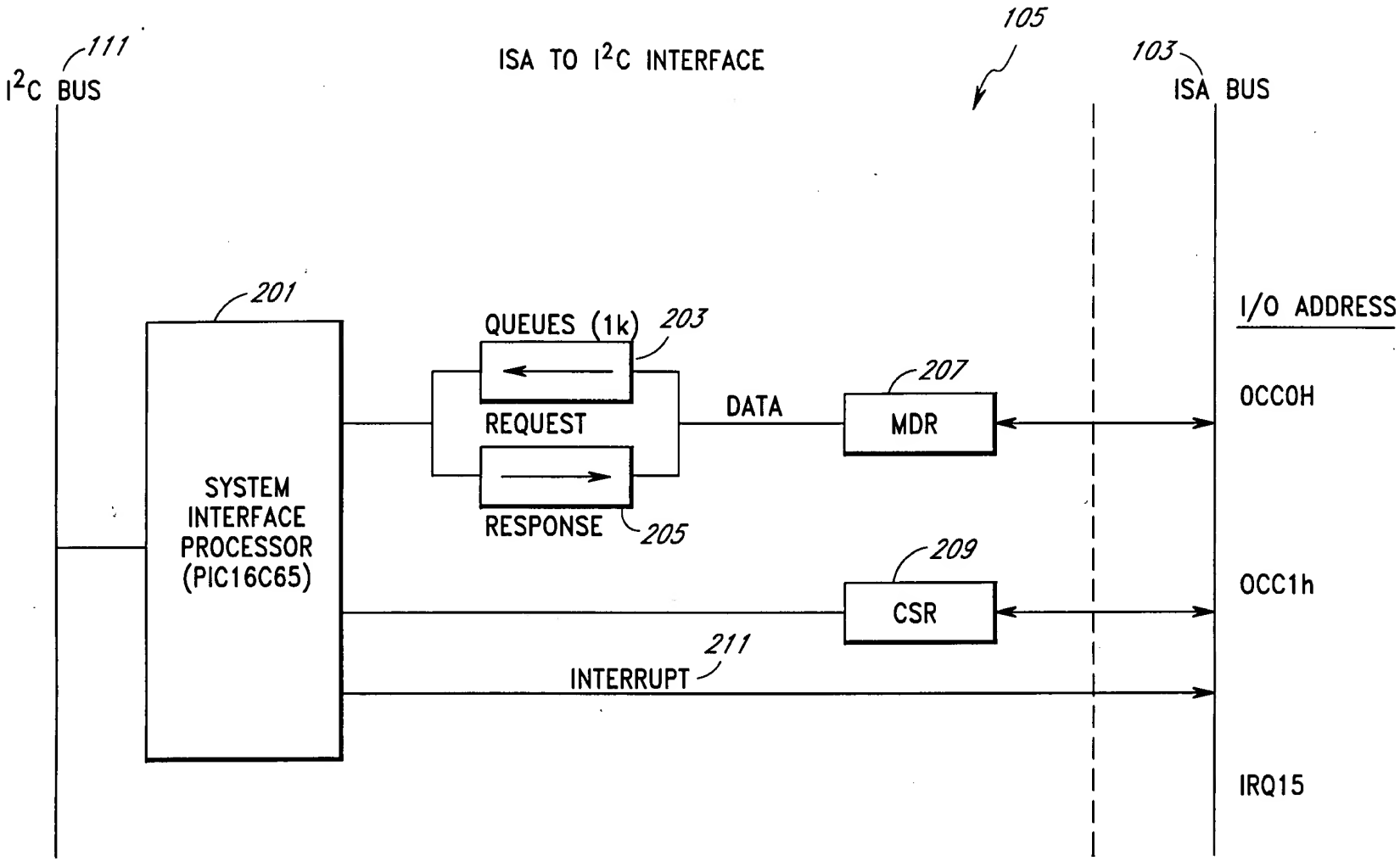

FIG.2

READ REQUEST FORMAT

Offset		
Byte 0	Slave Addr (7 Bytes)	0 LSBit
Byte 1	MSBit (1)	Type
Byte 2	Command ID (LSB)	
Byte 3	Command ID (MSB)	
Byte 4	Read Request Length (N)	
Byte 5	Check Sum	

FIG. 3A

WRITE REQUEST FORMAT

Offset		
Byte 0	Slave Addr (7 Bytes)	0 LSBit
Byte 1	MSBit (0)	Type
Byte 2	Command ID (LSB)	
Byte 3	Command ID (MSB)	
Byte 4	Write Request Length (N)	
Byte 5	Data Byte 1	
⋮	⋮	
Byte N+4	Data Byte N	
Byte N+5	Check Sum	

FIG. 3B

READ RESPONSE FORMAT

Offset		
Byte 0	Slave Addr (7 Bytes)	1 LSBit
Byte 1	Read Request Length (N)	
Byte 2	Data Byte 1	
⋮	⋮	
Byte N+1	Data Byte N	
Byte N+2	Status	
Byte N+3	Check Sum	
Byte N+4	Inverted Slave Addr	

FIG. 3C

WRITE REQUEST FORMAT

Offset		
Byte 0	Slave Addr (7 Bytes)	1 LSBit
Byte 1	Write Response Length (N)	
Byte 2	Status	
Byte 3	Check Sum	
Byte 4	Inverted Slave Addr	

FIG. 3D

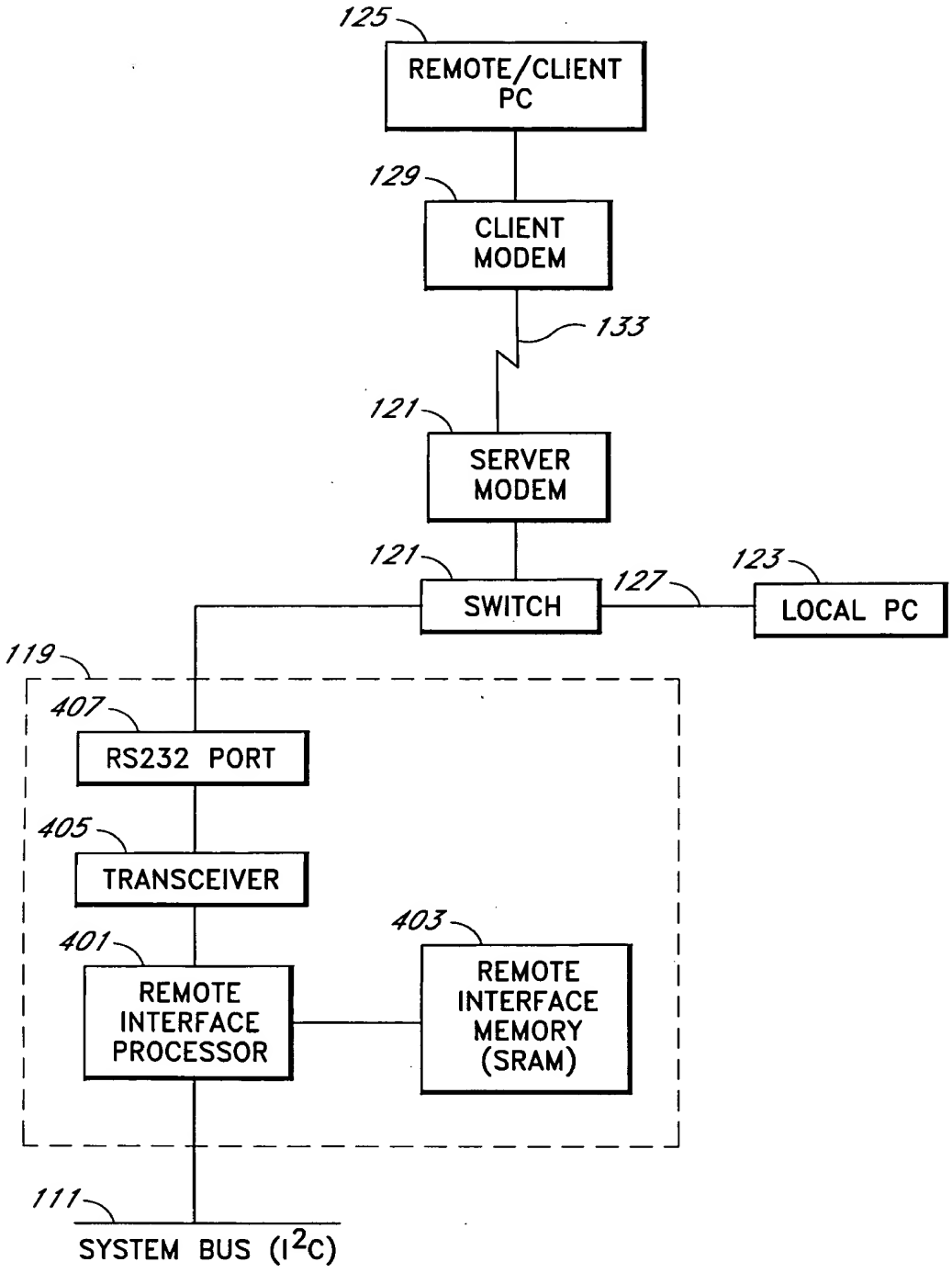
125
REMOTE/CLIENT PC
129
CLIENT MODEM
133
121
SERVER MODEM
121
SWITCH
127
123
LOCAL PC
119
407
RS232 PORT
405
TRANSCEIVER
401
REMOTE INTERFACE PROCESSOR
403
REMOTE INTERFACE MEMORY (SRAM)
111
SYSTEM BUS (I2C)

FIG. 4

REMOTE INTERFACE SERIAL PROTOCOL MESSAGE FORMATS

Request:

FIG. 5A

Response

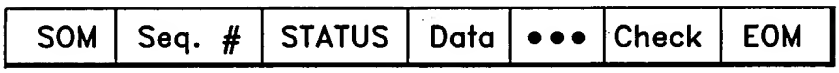

FIG. 5B

Event Interrupt

FIG. 5C

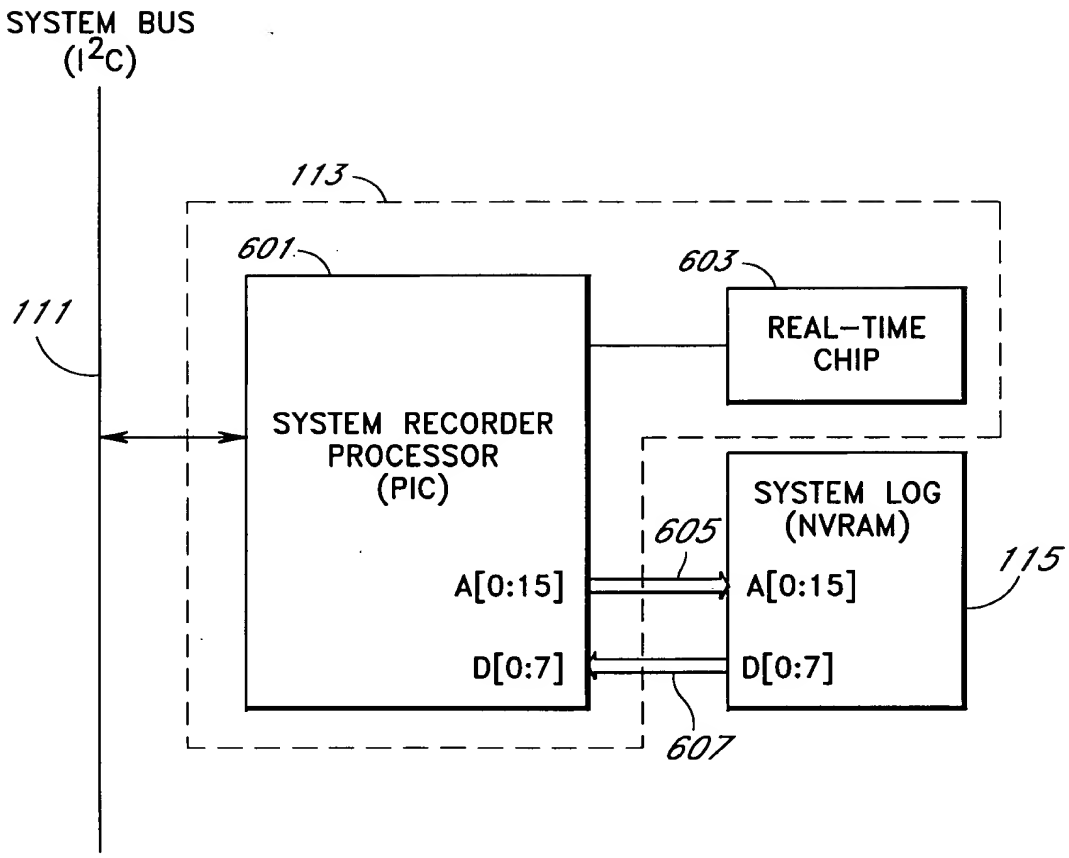
SYSTEM BUS
(I2C)
113
601
603
111
REAL-TIME
CHIP
SYSTEM RECORDER
PROCESSOR
(PIC)
SYSTEM LOG
(NVRAM)
605
115
A[0:15]
A[0:15]
D[0:7]
D[0:7]
607

FIG. 6

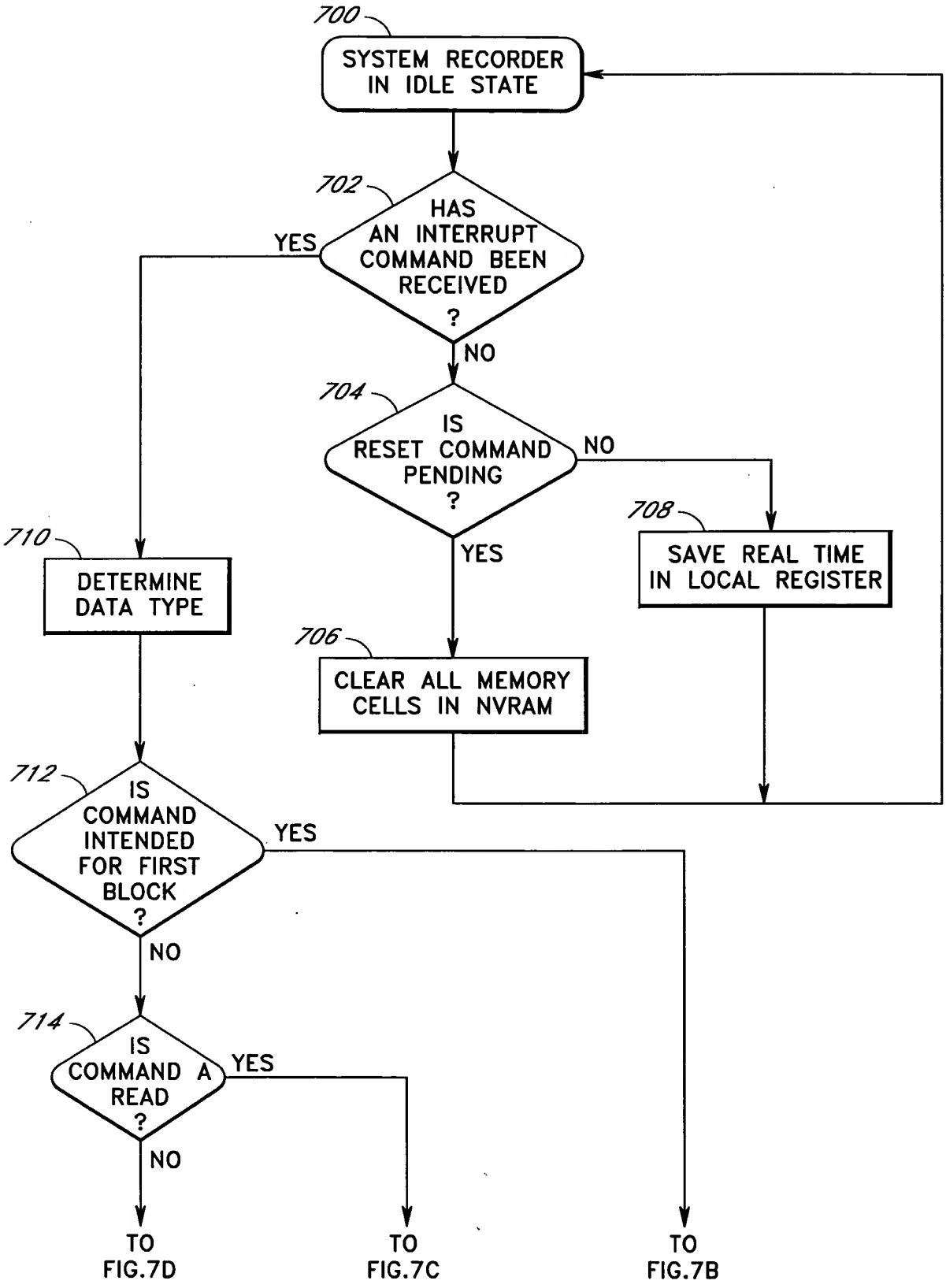
700
SYSTEM RECORDER IN IDLE STATE
702
HAS AN INTERRUPT COMMAND BEEN RECEIVED ?
YES
NO
704
IS RESET COMMAND PENDING ?
NO
YES
708
SAVE REAL TIME IN LOCAL REGISTER
710
DETERMINE DATA TYPE
706
CLEAR ALL MEMORY CELLS IN NVRAM
712
IS COMMAND INTENDED FOR FIRST BLOCK ?
YES
NO
714
IS COMMAND A READ ?
YES
NO
TO FIG.7D
TO FIG.7C
TO FIG.7B

FIG. 7A

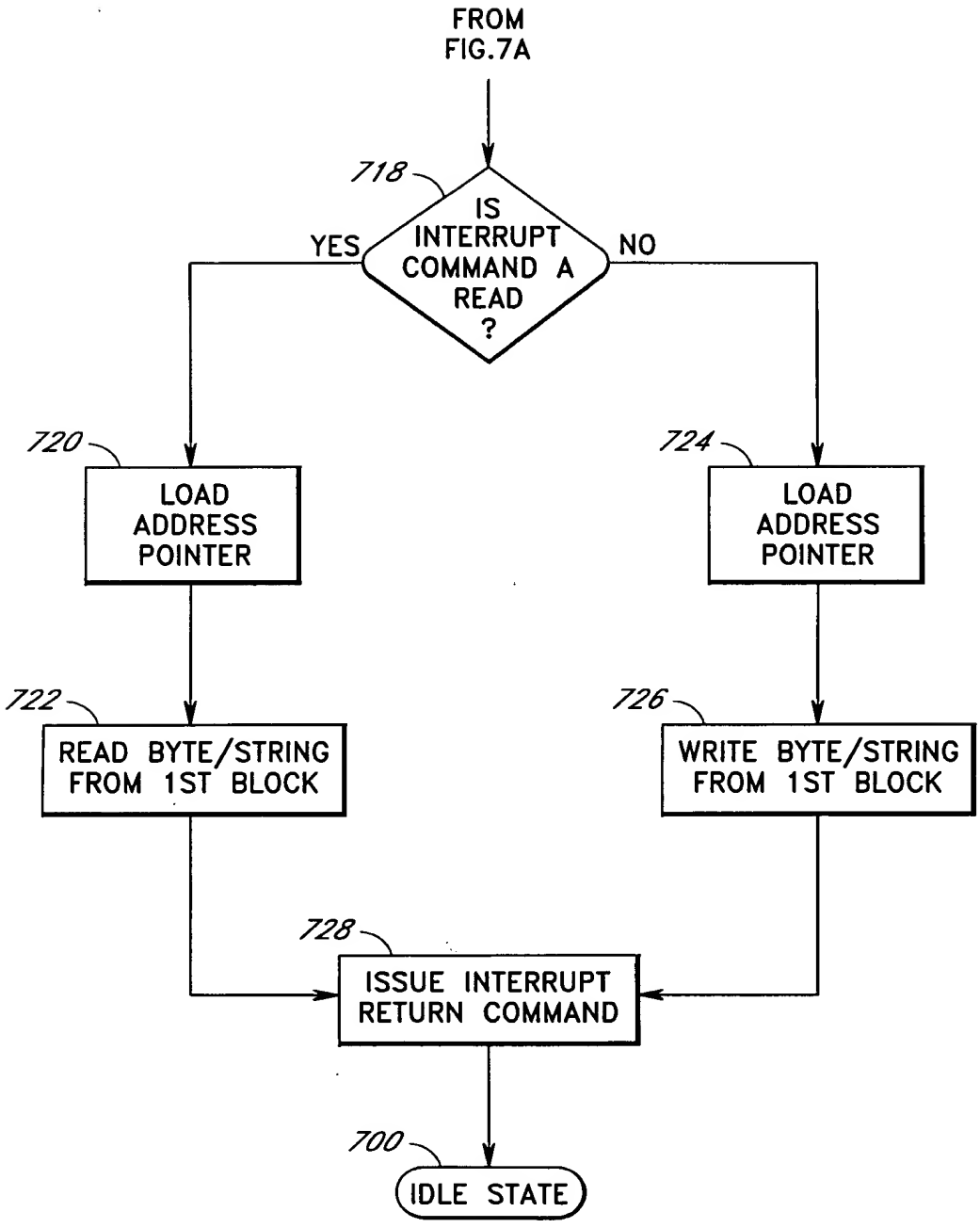
FROM
FIG.7A
718
IS
INTERRUPT
COMMAND A
READ
?
YES
NO
720
LOAD
ADDRESS
POINTER
724
LOAD
ADDRESS
POINTER
722
READ BYTE/STRING
FROM 1ST BLOCK
726
WRITE BYTE/STRING
FROM 1ST BLOCK
728
ISSUE INTERRUPT
RETURN COMMAND
700
IDLE STATE

FIG. 7B

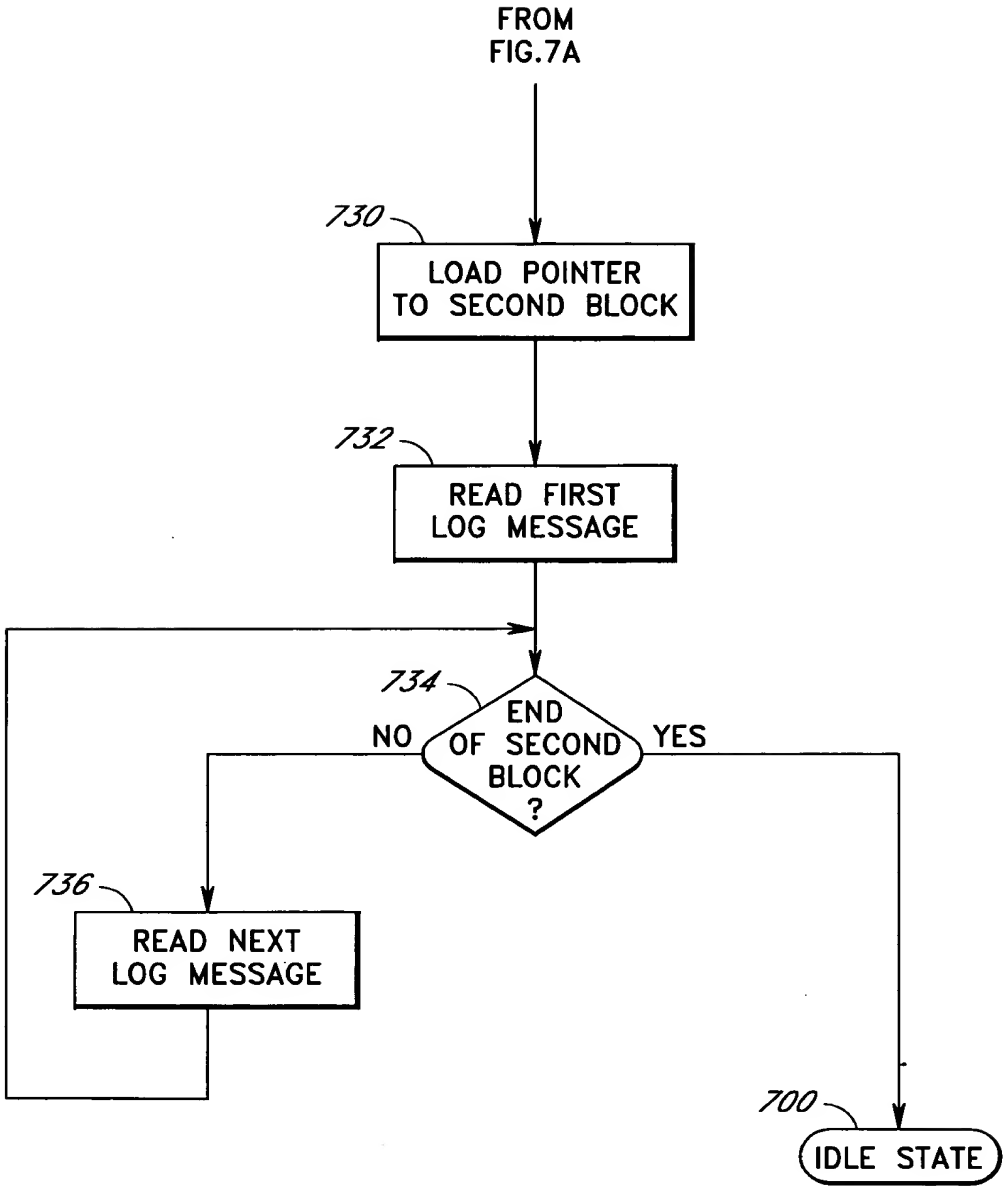
FROM
FIG.7A
730
LOAD POINTER
TO SECOND BLOCK
732
READ FIRST
LOG MESSAGE
734
END
OF SECOND
BLOCK
?
NO
YES
736
READ NEXT
LOG MESSAGE
700
IDLE STATE

FIG. 7C

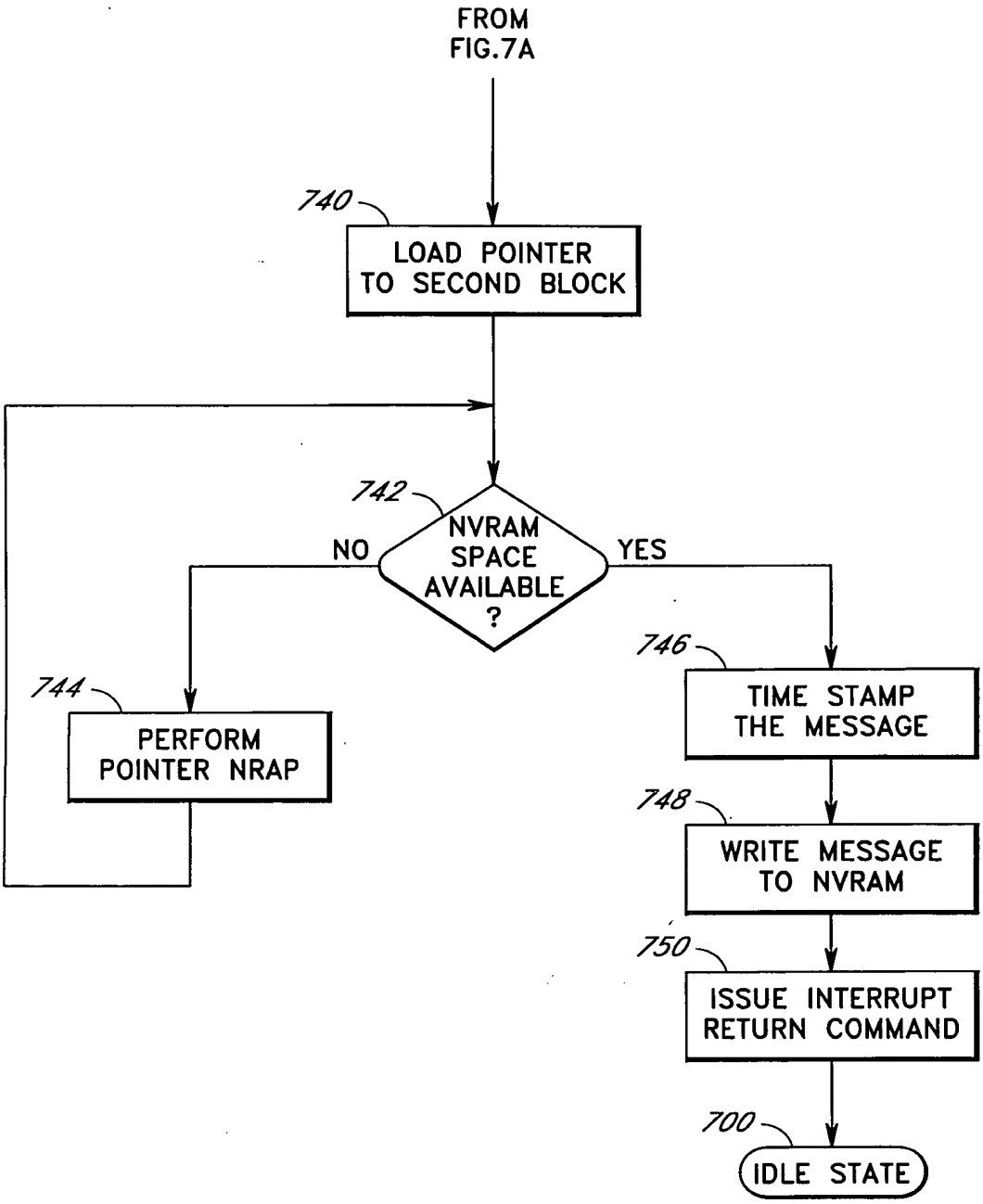
FROM
FIG.7A
740
LOAD POINTER
TO SECOND BLOCK
742
NVRAM
SPACE
AVAILABLE
?
NO
YES
744
PERFORM
POINTER NRAP
746
TIME STAMP
THE MESSAGE
748
WRITE MESSAGE
TO NVRAM
750
ISSUE INTERRUPT
RETURN COMMAND
700
IDLE STATE

FIG. 7D

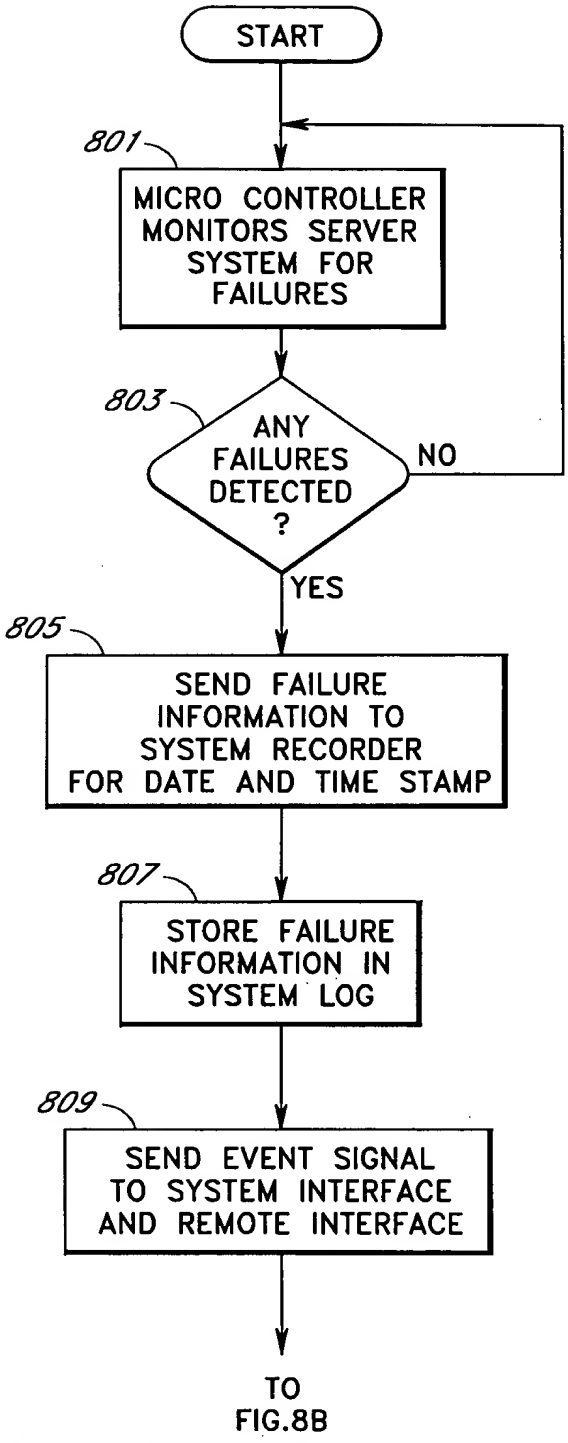
START
801
MICRO CONTROLLER MONITORS SERVER SYSTEM FOR FAILURES
803
ANY FAILURES DETECTED ?
NO
YES
805
SEND FAILURE INFORMATION TO SYSTEM RECORDER FOR DATE AND TIME STAMP
807
STORE FAILURE INFORMATION IN SYSTEM LOG
809
SEND EVENT SIGNAL TO SYSTEM INTERFACE AND REMOTE INTERFACE
TO FIG.8B

FIG. 8A

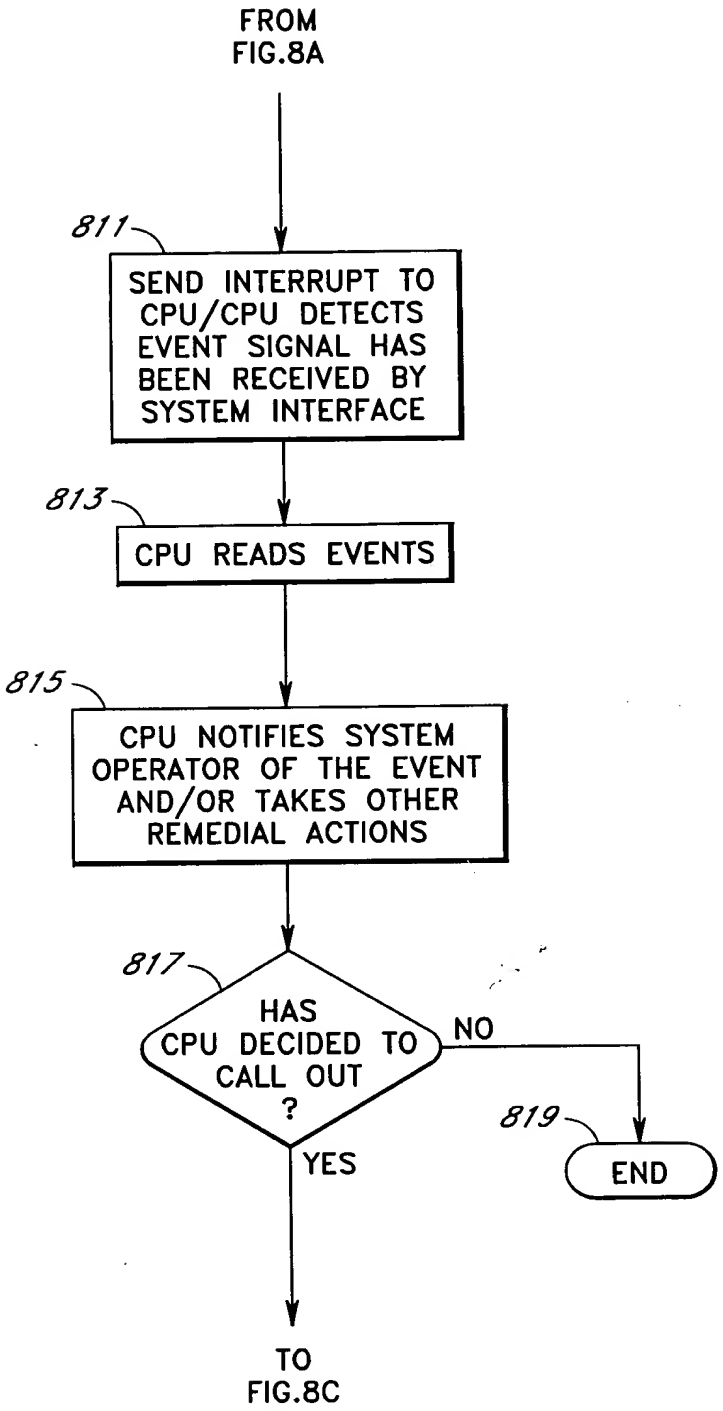
FROM
FIG.8A
811
SEND INTERRUPT TO CPU/CPU DETECTS EVENT SIGNAL HAS BEEN RECEIVED BY SYSTEM INTERFACE
813
CPU READS EVENTS
815
CPU NOTIFIES SYSTEM OPERATOR OF THE EVENT AND/OR TAKES OTHER REMEDIAL ACTIONS
817
HAS CPU DECIDED TO CALL OUT ?
NO
YES
819
END
TO
FIG.8C

FIG. 8B

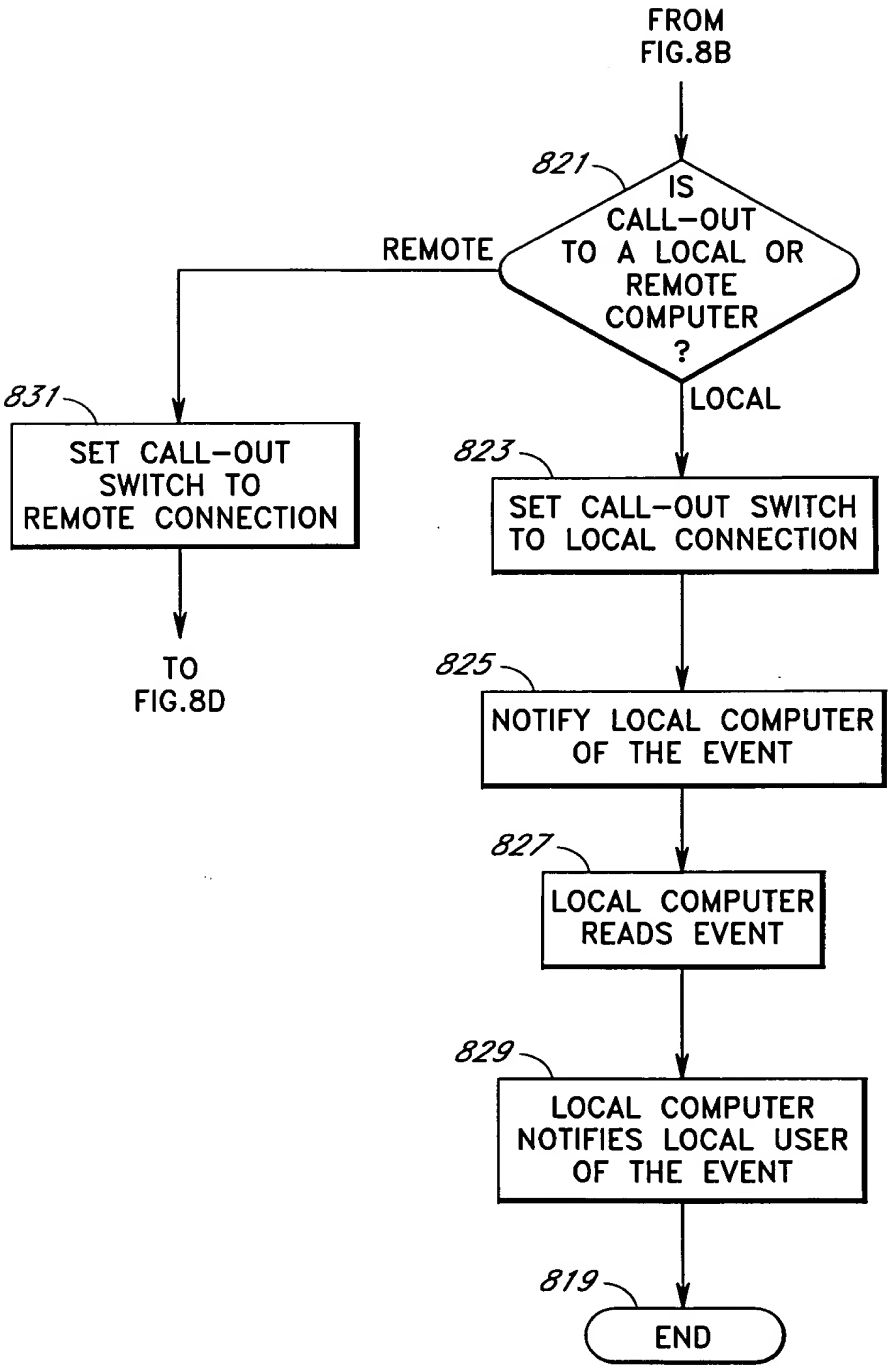
FROM FIG.8B
821
IS CALL-OUT TO A LOCAL OR REMOTE COMPUTER ?
REMOTE
LOCAL
831
SET CALL-OUT SWITCH TO REMOTE CONNECTION
TO FIG.8D
823
SET CALL-OUT SWITCH TO LOCAL CONNECTION
825
NOTIFY LOCAL COMPUTER OF THE EVENT
827
LOCAL COMPUTER READS EVENT
829
LOCAL COMPUTER NOTIFIES LOCAL USER OF THE EVENT
819
END

FIG. 8C

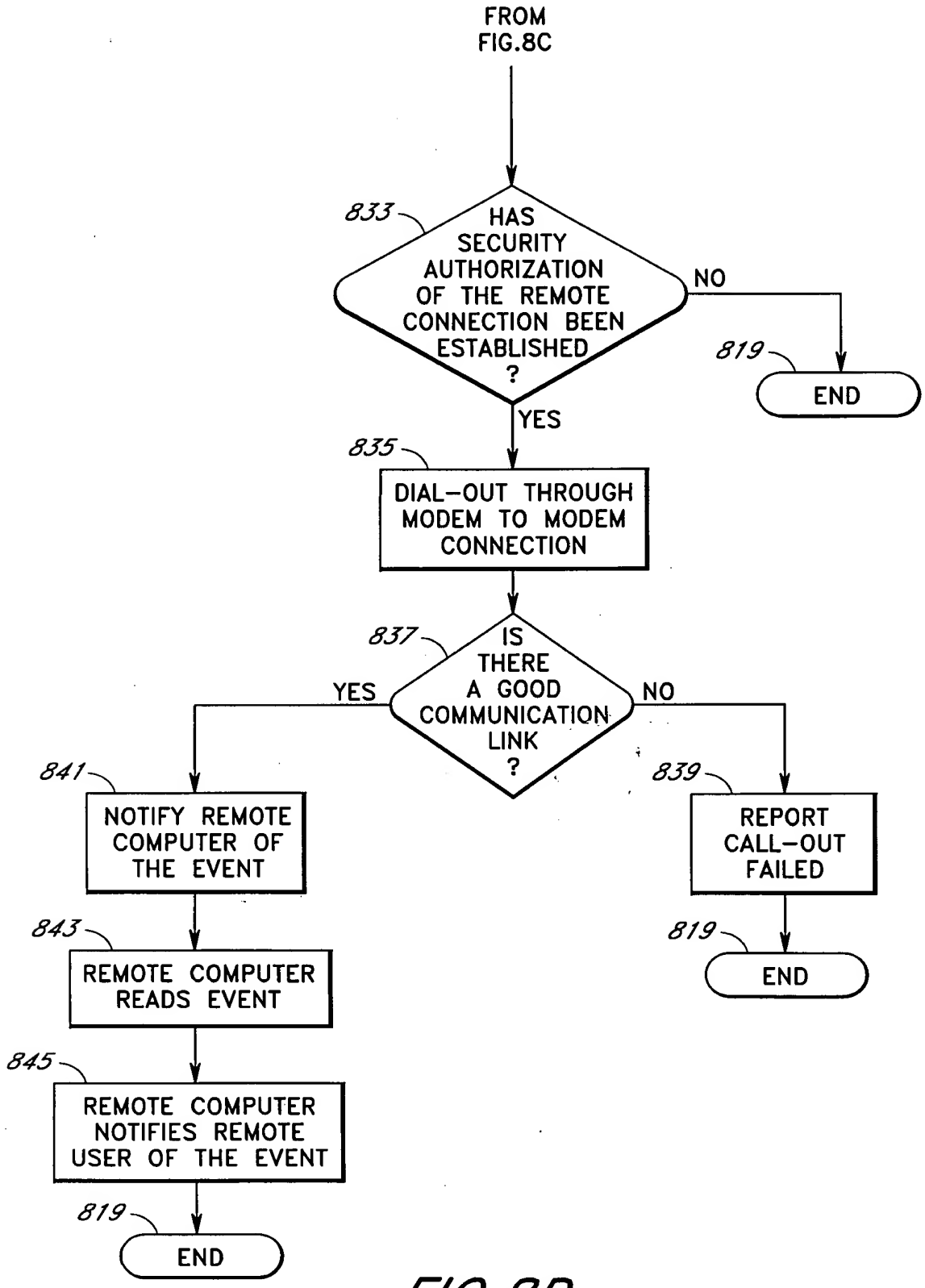
FROM FIG.8C
833
HAS SECURITY AUTHORIZATION OF THE REMOTE CONNECTION BEEN ESTABLISHED ?
NO
819
END
YES
835
DIAL-OUT THROUGH MODEM TO MODEM CONNECTION
837
IS THERE A GOOD COMMUNICATION LINK ?
YES
NO
841
NOTIFY REMOTE COMPUTER OF THE EVENT
843
REMOTE COMPUTER READS EVENT
845
REMOTE COMPUTER NOTIFIES REMOTE USER OF THE EVENT
819
END
839
REPORT CALL-OUT FAILED
819
END

FIG. 8D